New York State Integrated Pest Management Program

Improving the Management of Powdery Mildew of Cucurbits

Principal Investigators:

Margaret Tuttle McGrath, Dept. of Plant Pathology, Riverhead
Nina Shishkoff, Dept. of Plant Pathology, Riverhead

Cooperators:

Molly Kyle Jahn, Dept. of Plant Breeding, Ithaca
Anusuya Rangarajan, Dept. of Fruit & Vegetable Science, Ithaca
Joseph Sieczka, Dept. of Fruit & Vegetable Science, Ithaca
Dale Moyer, Vegetable/Potato Specialist, CCE Suffolk County
Abby Seaman, Western NY Vegetable IPM Specialist

ABSTRACT

The primary goals of this project were to evaluate powdery mildew resistant (PMR) pumpkins and to determine if there is a benefit of applying fungicides to PMR pumpkins.

Through this project, resistant varieties of pumpkin were shown to be an effective way to manage powdery mildew; however, challenges were also revealed. Two powdery mildew resistant (PMR) varieties were commercially available when this study was conducted. Magic Lantern was shown to be less resistant than an experimental pumpkin line being developed by Harris Moran (HMX 6687) or a Cornell line (98-714). There was a benefit to applying fungicides to Magic Lantern. An integrated program was highly effective: there was significantly less powdery mildew on PMR Magic Lantern receiving a 14-day fungicide program than on susceptible Wizard receiving a 7-day fungicide program. The other PMR variety, Merlin, was found to be very susceptible to bacterial wilt.

A range in susceptibility was also detected among PMR muskmelons. Both race 1 and 2, but not race 3, were present based on powdery mildew occurrence on differential genotypes. Some PMR muskmelons with resistance to both race 1 and 2 (Starfire and HMX 7607) had significantly less powdery mildew than PMR muskmelons with resistance only to race 1 (Eclipse and HMX 7606). Apollo, which has resistance to both races, had a similar amount of mildew as Eclipse. Applying fungicides to Eclipse and to Apollo improved control. The 7-day program was more effective than the 14-day program when compared using Eclipse.

For a printed copy of the entire report, please contact the NYS IPM office at:

IPM House
630 W. North St.
New York State Agricultural Experiment Station
Geneva NY 14456
315-878-2353